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Aristotle's Syllogistic: A Medieval View

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In recent years, a number of logicians have contended that Aristotle's procedure in presenting his syllogistic in the *Prior Analytics* (Bk. I, chs. 1-7) is non-demonstrative. Jan Lukasiewicz, for example, holds that Aristotle's theory of the syllogism is "an axiomatized deductive system" and not a demonstrative science. [1] Following his lead, I. M. Bochenski claims that in presenting his theory of the syllogism, Aristotle set forth the "first known axiomatic system, or more precisely the first class of such systems." [2] And while rejecting both Lukasiewicz's and Bochenski's interpretation of Aristotle's syllogistic, Martha Kneale agrees with them in thinking that Aristotle's procedure is not demonstrative.[3]

The issue concerning the demonstrative or non-demonstrative character of the *Prior Analytics*, as well as the other works collected in the *Organon*, was an important one during the Middle Ages. This was the case because at that time logic was generally held to be a science in its own right as well as an instrument of science.[4] Since only a demonstrative procedure was thought to be productive of

[1] Jan Lukasiewicz, *Aristotle's Syllogistic*, 2nd ed., (Oxford, 1957), p. 44.
[2] I. M. Bochenski, *A History of Formal Logic*, trans. by Ivo Thomas, (Notre Dame, 1960), p. 75.
[3] W. and M. Kneale, *The Development of Logic*, (Oxford, 1962), pp. 67-81.
[4] Ernest A. Moody, *Truth and Consequence in Mediaeval Logic*, (Amsterdam, 1953), pp. 13-14. Also see, for example, Avicenna, *Avicenna Opera*, (Venice, 1508), *Logicae, Prima pars, fol.* 2rb-2vb; John of Salisbury, *Metalogicon*, ed. Clement C. J. Webb, (Oxford, 1929), Lib. II, c. V, p. 67; and Thomas Aquinas, *In Aristotelis Libros Peri Hermeneias et Posteriorum Analyticorum*, ed. Raymundi M. Spiazzi, (Torino, 1955), pp. 5 and p. 147. It is noteworthy that metalogical concerns of this sort received considerable attention in the works of two very influential logicians of the 16th century, viz., John Poinsot and Jacob Zabarella. Poinsot maintained that logic is both a science and the instrument of the sciences, whereas Zabarella contended that it is only the instrument of the sciences. On this point, see John J. Glanville, "Zabarella and Poinsot on the Object and Nature of Logic", *Readings in Logic*, ed. Roland Houde, (Dubuque, 1958), pp. 204-226.

science, it would seem to follow that the procedure employed in the *Prior Analytics* (Bk. I, chs. 1-7) was demonstrative. One finds, however, that Albert the Great, (1193-1280), an important logician of this period and one who emphatically held logic to be a science, is in agreement with Lukasiewicz and others on the non-demonstrative character of the *Prior Analytics* (Bk. I, chs. 1-7).[5] But, unlike the aforementioned authors, Albert, as I intend to show, seems to have conceived of Aristotle's approach to the syllogistic as something like a decision procedure. I also intend to show that such a view is not necessarily incompatible with the belief that the *Prior Analytics* itself counts as a work in science. To do this, first of all it will be useful to have a sketch of Albert's notion of demonstration and demonstrative science.

I

Albert delimits the concept of demonstration in his paraphrase of Aristotle's *Posterior Analytics*, a work which he judged to be demonstrative on two counts: (a) it teaches one how to demonstrate, i.e., it sets forth the principles of demonstration; and (b) in doing so, it exemplifies demonstrations, i.e., it contains demonstrations and thus counts as a demonstrative science.[6] Insofar as it concerns the teaching of demonstration, it has as its subject the demonstrative syllogism: "... est autem haec scientia ut de subjecto de syllogismo demonstrativo: de hoc enim inquirit differentias et passiones et modos

[5] Albert explicitly takes up the question concerning the scientific character of logic in *De praedicabilibus*, tr. 1, c. 1. All references to the first tract of the *De praedicabilibus* are based on the edition of Joseph Blarer entitled "De Antecedentibus Ad Logicam", *Teoresi Rivista di cultura filosofica*, Vol. 9, 1954, pp. 177-242; all other references to the works of Albert are to the Borgnet edition, *Opera Omnia*, (Paris, 1890). He indicates his view of the scientific character of the *Prior Analytics* in the following text: "Sed ad hoc dicendum quod scientia *Posteriorum* magis subalternatur libro *Priorum*, quam e converso: cum subjectum hujus sit sub subjecto illius. Quod enim artifex libri *Priorum* modum accipit demonstrandi, non est a libro *Posteriorum*, sed a demonstratione quae est per experimentum et per viam sensus, a quo oritur omnis scientia: et de tali modo demonstrandi non est scientia *Posteriorum*." *In I post. anal.*, tr. 1, c. 2, p. 7b.

[6] When speaking of the *modus* employed in the *Posterior Analytics*, Albert states: "Resolutoria enim est haec scientia: quia resolvit et resolvere docet conclusiones in principia, quae sunt causae essentiales et propriae sive convertibiles immediate." *In I post. anal.*, tr. I, c. 1, p. 3b. This text indicates that Albert discerned what might be termed a "show and tell" aspect of Aristotle's work.

quibus fiat." [7] And insofar as it exemplifies demonstrations, it contains demonstrations that have as their subject the demonstrative syllogism.[8] No attempt is made to prove that there really is such an entity as the demonstrative syllogism. Albert simply identifies it as the subject of the science set out in the *Posterior Analytics* and then indicates its definition. Logic, for him, concerns the instruments for moving from the known to a knowledge of the unknown.[9] Demonstration is one of these instruments and, like any other, it has a particular function or end. Albert specifies its end and defines it in terms of such: *demonstratio est syllogismus faciens scire.*[10] The term *syllogismus* constitutes the generic element of this definition, and while its meaning has already been determined in the *Prior Analytics*, the meaning of *scire* must be specified in the *Posterior Analytics* prior to its use as an element in the definition of demonstration. Albert does this and also mentions another reason for indicating its meaning here:

> Intendimus enim ex quibus et qualibus est demonstratio: nec possunt sciri quae sunt ad finem, nisi ex proportione ad finem ipsum, et utrumque illorum referatur: et sic scientia finis dirigit intentionem omnium aliorum quae ad finem ordinantur: et hoc ratione praemittenda est determinatio finis omnibus aliis.[11]

Scire thus serves as a principle from which the conditions for its 'production' are derived.

On the basis of this, Albert calls attention to what he considers to be a demonstration in which the conditions of demonstration are concluded by means of the aforementioned definition of demonstration:

> Every syllogism productive of *scire* is from propositions that are true, primary, immediate, better known than, prior to, and causes of the conclusion.
>
> Every demonstration is a syllogism productive of *scire.*
>
> Every demonstration is from propositions that are true, primary, etc.

[7] *Ibid.*, p. 2b.

[8] This means that there are demonstrations about demonstrations in the *Posterior Analytics* and that these demonstrations serve as examples of demonstration. There are also presented in this work instances of demonstration that have a different subject and serve as examples of demonstration in sciences other than logic. See, for example, *In II post. anal.*, tr. II, c. 11, p. 192b.

[9] On Albert's conception of logic, see my "Logic, Language, and Albert the Great", *Journal of the History of Ideas*, XXXIV, 3 (July-Sept., 1973), pp. 445-450.

[10] *In I post. anal.*, tr. II, c. 1.

[11] *Ibid.*, p. 21a

Concerning the conclusion of this argument, he thus states: "conclusio est diffinitio materialis demonstrationis demonstrata per diffinitionem ejus quod est scire. Et hoc quidem est verum secundum intellectum Aristotelis, et tunc praepositio quae proponitur cum dicitur, ex veris et primis, notat circumstantias causae materialis." [12] We therefore have in the above, at least in Albert's mind, an instance of an argument in which the principles of demonstration are both set forth and exemplified. Accordingly, we have in the above some idea of what Albert takes to be the principles of demonstration as well as an example of what he takes to be a demonstration and thus a demonstrative science. Given this picture of demonstration and demonstrative science, let us now turn to Albert's paraphrase of the *Prior Analytics* (Bk. I, chs. 1-7).

II

Albert devotes two full tracts of his paraphrase to a discussion of Aristotle's doctrine of the assertoric syllogism. The first deals primarily with the definition of the syllogism, its division into perfect and imperfect, and the principles of the perfect and the imperfect syllogism.[13] The second, entitled *De Generatione Syllogismorum in Figura*, concerns the different figures and modes of the syllogism.[14]

Unlike Lukasiewicz and others, the syllogism for Albert is a rule of inference and not a conditional proposition, i.e., it is a certain kind

[12] *Ibid.*, c. 2, pp. 24b-25a. In the fourteenth century, Ockham questioned the demonstrative character of this argument, and contended that it was not properly speaking a *demonstratio* but a certain *notificatio*. On this point, see Damascene Webering, *Theory of Demonstration according to William Ockham*, (New York, 1953), p. 19. Apparently he based his view on the claim that the definition *syllogismus faciens scire*, which is stated in terms of the function or final cause of demonstration and used as a middle term in this argument, only expresses the *quid nominis* of demonstration. *Ibid.*, p. 3 and p. 19. Also see Ernest A Moody, *The Logic of William of Ockham*, (New York, 1935), pp. 274-279. Walter Burley, however, another influential logician of the same period, seems to have regarded it as a demonstration. At any rate, he states that the conclusion derived in the above argument is the first in the science expounded in the *Posterior Analytics*, and uses the word *probatur* to describe the manner of its derivation. See his *Scriptum super Libros Posteriorum Aristotelis...*, (Venice, 1514), t. I, c. 2, *fol.* 40vb. Burley's predecessor, Robert Grosseteste, clearly views it as a demonstration in which, he contends, the material definition of demonstration is concluded from its formal definition. Like Burley, he indicates that it is the first conclusion of Aristotle's work. See his *In I post. anal.*, (Venice, 1514), c. 2, *fol.* 3rb.

[13] *In I pr. anal.*, tr. I, pp. 459a-485b.

[14] *Ibid.*, tr. II, pp. 486a-515b.

of *modus*.[15] All syllogisms are said to be syllogisms because they consist of three terms arranged in such a way that they necessarily entail a consequent—Albert calls this the *necessitas consequentiae* in contradistinction to the *necessitas consequentis*—but in some cases the fact that a given syllogism necessarily entails a consequent requires no proof and in others it does.[16] Of the former type of syllogism, Albert holds that it is apparent that it necessarily entails a consequent and hence it is said to be perfect.[17] Regarding the latter type, he contends that it is not apparent that it necessarily entails a consequent and thus it is said to be imperfect.[18]

For Albert, the principles of the perfect syllogism are two: the *dici de omni* and the *dici de nullo*.[19] The principle of the imperfect syllogism, he claims, is conversion.[20] As set forth by Albert, the *dici de omni* and the *dici de nullo* are neither axioms of a system nor summary statements of the first four modes of the first figure syllogisms.[21] He calls them 'principles' and it seems that what he means here is that syllogistic argumentation somehow proceeds from or depends upon one or the other of them. 'To be predicated or said of all' means that the predicate of a universal affirmative proposition is asserted of any and all of the parts of its subject; while 'to be predicated or said of none' means that the predicate of a universal negative

[15] The word *modus* has many meanings. See A. Ernout and A. Meillet, *Dictionnaire étymologique de la langue latine*, 4th ed., rev. (Paris, 1960), pp. 408-409. For a treatment of *modus* as it pertains to logic, see James A. Weisheipl, O. P., "The Evolution of Scientific Method," *The Logic of Science*, ed. V. E. Smith, (New York, 1964), pp. 59-86. Among the meanings of the word *modus*, one can discern two distinct but not unrelated senses. In one of its usages, it means the measure, norm, or way according to which one proceeds, for example, in an inquiry. In another of its usages, it means the determination in a thing resulting from its subjection to an objective measure, norm or way. Obviously when Albert uses the term *modus* in connection with the syllogism, he is using it in the former manner.

[16] *In I pr. anal.*, tr. I, c. 5, p. 466b.

[17] *Ibid.*, c. 6, p. 467a.

[18] *Ibid.*, pp. 467a-467b. First figure syllogisms are called 'perfect' and second and third figure syllogisms are called 'imperfect'. It appears that Albert thinks that the relation of transitivity among syllogistic terms is intuitively evident in first figure syllogisms only.

[19] *In I pr. anal.*, tr. I, c. 7, pp. 468a-468b.

[20] "conversio propositionum in terminis eisdem facta est principium per quod perficitur syllogismus imperfectus." *Ibid.*, c. 8, p. 469a. Although this is the primary principle used in perfecting syllogisms, it is not the only one. See *ibid.*, p. 469b.

[21] On Aristotle's understanding of these principles, see, for example, Bochenski, *op. cit.*, p. 79.

proposition is denied of any and all of the parts of its subject.[22] By 'parts' in the above context, Albert clearly means subjective and not integral or physical parts.[23] Accordingly, if the *dici de omni* is understood in this way, the proposition 'every man is an animal' does not assert that every integral part of man, such as his arm, leg, heart, etc., is an animal, rather it asserts that every instance of man as such is an animal. The same holds true *mutatis mutandis* of the *dici de nullo*. Accordingly, syllogistic argumentation resulting in an affirmative conclusion depends on the *dici de omni* in the sense that it requires of a term the capacity to be predicated of all of the subjective parts of another term; while syllogistic argumentation resulting in a negative conclusion depends on the *dici de nullo* in the sense that it requires of a term the capacity to be predicated of none of the subjective parts of another term. If there were no such capacity, then syllogistic argumentation would be impossible, for argumentation of this sort presupposes that a predicate term can be said of or denied of whatever its subject term is said of. This, it would seem, is why Albert states: "Et iterum dicendum est quid est quod dicimus de omni vel de nullo: sine his enim non potest esse discursus syllogisticus." [24]

Albert describes the principle of the imperfect syllogisms in the following way: "Est autem conversio propositionis in terminis sicut terminorum transpositio, ut subjectum fiat praedicatum, et e converso de praedicato fiat subjectum." [25] As distinguished from the *dici de omni* and the *dici de nullo*, its purpose consists in effecting the reduction of imperfect syllogisms to perfect syllogisms, i.e., it is a principle of proof.[26]

Four different forms of proposition are recognized as *syllogistica* by Albert: the universal affirmative, the universal negative, the particular affirmative, and the particular negative (henceforth each will be represented by the letters A, E, I and O respectively). Of these forms, only the first three are said to admit of conversion:[27]

[22] *In I pr. anal.*, tr. I, c. 6.
[23] Albert indicates that this is the case in the following text: "Quando autem dicitur, quando nihil est sumere sub subjecto, non stat nisi pro partibus subjectivis: quia illae solae sumuntur sub subjecto sicut communi: integrales autem non sumuntur sub subjecto, quia totum subjectum non praedicatur de ipsis." *Ibid.*, c. 7, p. 468b.
[24] *Ibid.*, c. 2, p. 460b.
[25] *Ibid.*, c. 8, p. 469b.
[26] On this point, see, for example, *ibid.*, tr. II, c. 8, p. 498b.
[27] *Ibid.*, tr. I, c. 9, p. 473b.

(a) xAy converts to yIx
(b) xEy converts to yEx
(c) xIy converts to yIx

As can be seen from the above, the conversion of the latter two forms simply involves a change in the position of their respective subject and predicate terms, whereas the conversion of the first involves a change in its quantity as well. In each case, however, the quality of a given proposition remains unchanged.

In his discussion of conversion, Albert speaks of *conversio per contrapositionem*, but rules it out as a principle for reducing syllogisms.[28] He also mentions two other ways of 'perfecting' imperfect syllogisms, viz., *deductio ad impossibile* and *expositio*, yet neither procedure is explained prior to his consideration of the assertoric syllogism as such.[29]

For Albert, the various syllogistic figures result from the relation of terms to one another: "Ad generationem autem syllogismi requiritur ordo terminorum in propositionibus syllogismi positorum, ex ordine generantur syllogismorum diversae figurae." [30] As was common in his day, he admits only three figures.[31] The reason for this is given in the following passage:

> Si autem quaeratur, quare tantum tres sunt figurae et qualiter ordinantur ad invicem, satis patet solutio per ante dicta: dispositio enim medii duorum mediorum variari non potest nisi tripliciter, scilicet ut aut sit inter extrema, vel extra ipsa. Si autem est inter extrema, non potest esse nisi subjectum in prima et praedicatum in secunda: quia aliter accideret quod nihil concluderetur, sicut in ante habitis dictum est. Adhuc autem ex quo est inter extrema quae sunt majus et minus secundum lineae praedicamentalis ordinem, oportet quod subjectum primi sit praedicatum secundi. Si vero medium est extra et extremi habet positionem, non potest esse nisi ante vel post. Et ante quidem facit figuram secundam: post autem esse facit figuram tertiam.[32]

The basis for the distinction between syllogistic figures therefore lies in the position of the middle term: it is either between the extremes or outside of the extremes. If it is between the extremes, the first figure results. If it is outside of the extremes, i.e., when the middle term is predicate of both propositions or subject of both, either the

[28] *Ibid.*, tr. I, c. 8, p. 469a.
[29] *Ibid.*, p. 469b.
[30] *Ibid.*, tr. II, c. 1, pp. 486a-486b.
[31] See Bochenski, *op. cit.*, p. 216.
[32] *In I pr. anal.*, tr. II, c. 14, pp. 515a-515b.

second or third figure results. There is no possibility of a fourth figure because when the middle term is between both extremes, it must be subjected to what is called the 'major extreme' and predicated of what is called the 'minor extreme'. For, as Albert contends in the *De praedicabilibus*, that which is between two extremes must be the logical inferior of one, viz., the major, and the logical superior of the other, viz., the minor.[33]

Of the three figures, the first, according to Albert, is somehow objectively superior to the second and third since in it the "medium vere medium est, et extremitates sunt vere extremitates. In aliis autem medium et extrema non habent perfectam medii et extremorum rationem: et ideo in illis figuris non perfecte fit syllogismus extremitatum." [34] Using a combinatorial procedure, Albert determines all of the possible syllogistic modes (the mode of a syllogism results from the quality and quantity of the propositions out of which it is composed), and then determines which of these are valid, i.e., *utile*.[35] Of all possible modes, he acknowledges only the validity of four in the first figure, four in the second, and six in the third:

Figure I

1.1	1.2	1.3	1.4
xAy	xEy	xAy	xEy
zAx	zAx	zIx	zIx
zAy	zEy	zIy	zOy

Figure II

2.1	2.2	2.3	2.4
yEx	yAx	yEx	yAx
zAx	zEx	zIx	zOx
zEy	zEy	zOy	zOy

Figure III

3.1	3.2	3.3	3.4	3.5	3.6
xAy	xEy	xIy	xAy	xOy	xEy
xAz	xAz	xAz	xIz	xAz	xIz
zIy	zOy	zIy	zIy	zOy	zOy

Concerning the four valid modes of the first figure, Albert claims that all are confirmed (*confirmantur*) by the principles *dici de omni* and *dici de nullo*; 1.1 and 1.3 are confirmed by the *dici de omni* whereas

[33] *De praedicabilibus*, tr. IV, c. 3, p. 63b.
[34] *In I pr. anal.*, tr. II, c. 2, p. 489a.
[35] Albert's combinatorial procedure was probably derived from Moslem logicians. See Bochenski, *op. cit.*, p. 219.

1.2 and 1.4 are confirmed by the *dici de nullo*.[36] Although it is difficult to see what Albert means by this, it seems that he regards these principles as somehow justifying or explaining the different inferences exhibited in these four modes. In any case, his remarks on the use of these principles in confirming certain syllogistic modes would indicate this. For example, when discussing 1.3, he states: "Et confirmatur per dici de omni, a quo fit discursus syllogisticus: quia ex quo A inest omni B universaliter, tunc oportet quod insit omni parti ejus quod est B: C autem aliquod est aliqua partium B, oportet igitur quod illi insit A." [37]

Of the four valid modes of the second figure, none are confirmed by the above principles; all are said to be proven, however, by means of conversion, conversion and the transposition of propositions, or *reductio ad impossibile*.[38] The first and third mode only require conversion of the major proposition:

2.1 yEx converts to xEy thus forming 1.2 xEy
zAx zAx
zEy zEy

2.3 yEx converts to xEy thus forming 1.4 xEy
zIx zIy
zOy zOy

The second mode requires both conversion of the minor proposition and transposition:

2.2 yAx converts to xEz, which, in turn, becomes 1.2 xEy
zEx the major proposition in zAx
zEy zEy

The fourth mode cannot be proven by either of the above procedures, but, as Albert states, it is proven by *reductio ad impossibile*.[39] This involves taking the contradictory of the conclusion of 2.4 along with its major proposition and thus forming 1.1. Since the conclusion of 1.1 is inconsistent with the remaining proposition in 2.4, the acceptance of both propositions of 2.4 and the denial of its conclusion would constitute an inconsistency.

Like the valid modes of the second figure, it is also necessary to

[36] *In I pr. anal.*, tr. II, c. 2, p. 489b and c. 4, p. 491b.
[37] *Ibid.*, c. 4, p. 491b.
[38] *Ibid.*, c. 14, p. 513a.
[39] *Ibid.*, c. 8, p. 498b.

prove the validity of those of the third by means of conversion, conversion and transposition, or *reductio ad impossibile*. Four of the six valid modes require conversion of the minor proposition only, viz., 3.1, 3.2, 3.4, and 3.6; one requires conversion and transposition, viz., 3.3; and one requires *reductio ad impossibile*, viz., 3.5.

Albert concludes his treatment of Aristotle's assertoric syllogism with the following remarks on the order of the first to the second and third figures, and of the second to the third figure:

> Ordo autem est, quod prima praemittitur sicut principium et metrum et perfectio aliarum. Secunda autem est ante tertium: prima quidem ratione, quia ejus medium est primum positione, tertiae autem figurae medium est ultimum positione. Secunda autem ratione, quia duplex concludit problema, universale scilicet et particulare: cum tertia non concludat nisi particulare. Tertia etiam ratione, quia secunda figura descendit a prima figura per conversionem majoris secundi modi primae figurae: tertia vero figura descendit a prima per conversionem minoris ejusdem modi.[40]

The first figure is prior to the others insofar as it is the principle of the second and the third, i.e., the second figure results from the conversion of the major proposition of the first figure, while the third results from the conversion of the minor proposition of the first figure.[41] It is also the measure of the other figures in the sense that the second and third figure syllogisms are validated by being in some manner transformed into the first figure.[42]

The second figure is prior to the third on three counts: (a) the middle term in the second figure functions as a predicate, whereas the middle term in the third figure functions as a subject only:[43] (b) universal and particular conclusions can be derived in the second figure, whereas only particular conclusions can be derived in the third; and (c) the second figure is derived from the first by means of conversion of the major proposition of the second mode of the first figure, while the third figure is derived from the conversion of the minor proposition of the same mode of the first figure. In connection with this last point, it should be noted that only the second and third figures can be derived from the first in this manner; Albert is not

[40] *Ibid.*, c. 14, p. 515b.

[41] This was already pointed out by Boethius. See *De Syllogismo Categorico*, ed. J-P. Migne, *Patrologiae Latinae*, Vol. 64, 1860, 812D-813B.

[42] It seems that it is the *perfectio* of second and third figure syllogisms in the same way.

[43] Albert claims that predicates are prior to subjects in the predicamental line. See, for example, *De praedicabilibus*, tr. 4, c. 3, p. 63b.

saying that every valid mode of each of these figures can be derived by means of conversion, nor could he correctly say this.[44]

III

Given the preceding exposition, it should be clear why Albert does not regard Aristotle's procedure in the first seven chapters of the *Prior Analytics* as demonstrative. First, given Albert's understanding of Aristotle's theory of demonstration, only that which can be expressed by means of a categorical proposition admits of demonstration. Albert, however, regards the syllogism as an inference scheme. Second, demonstration is made possible through a certain kind of syllogism; yet, the procedure used in validating second and third figure syllogisms is not itself syllogistic. Lastly, Albert contends that the subject of a science does not itself admit of demonstration.[45] But the syllogism *simpliciter* constitutes the subject of *syllogistica scientia*, and its various modes and figures in different ways exhibit this subject.[46]

While not regarding Aristotle's method as set forth in the first seven chapters of the *Prior Analytics* as demonstrative, it seems that Albert conceived of it as being a decision procedure. He recognizes only certain first figure syllogisms as evidently valid and confirmed to be such by the *dici de omni* and *dici de nullo*. Syllogisms formed in either the second or third figures are judged to be valid only if they can be transformed into first figure syllogisms by means of conversion, transposition, or *reductio ad impossibile*. Those syllogisms which cannot be transformed into first figure syllogisms are regarded as invalid. For Albert then, *reductio* is a method used in determining the scope of the subject of *syllogistica scientia*. Unlike demonstration, *reductio* is not productive of scientific knowledge and since it is not productive of such knowledge, one may wonder why Albert refers to the *Prior Analytics* as if it were a work in science. Indeed, why does he claim that logic itself is a science, if a very important part of logic does not satisfy the conditions of science ?

Although Albert is not too clear on this point, there are several reasons for thinking that he considered only certain sections of the *Prior Analytics* to be non-demonstrative and others demonstrative. First of all, he indicates that the inherence of proper passions in the

[44] 2.4, for example, could not be derived in this manner.
[45] *In I post. anal.*, tr. III, c. 1, p. 68b.
[46] *In I pr. anal.*, tr. I, c. 1, p. 459a.

syllogism as such is known in a demonstrative way: "sic enim acceptus syllogismus simplex proprias habet passiones quae de ipso per propria principia sunt probandae, ut fiat de ipso scientia specialis." [47] Secondly, shortly after his exposition of Aristotle's modal syllogistic, Albert claims that the passion 'to have only three terms' is proven (*probatur*) to belong to the syllogism as such and it seems that here he is using the term *probatur* as a synonym for *demonstratur*.[48] Finally, the assumption that Albert did not view all sections of the *Prior Analytics* as being non-demonstrative or demonstrative could explain why he claims in his paraphrase of the *Posterior Analytics* that the mode followed in its companion work is not demonstrative. For, given this assumption, one can take Albert's remarks in this work to be directed to the non-demonstrative sections of the *Prior Analytics* and, in particular, to Bk. I, chs. 1-7. His remarks to the effect that the *Prior Analytics* counts as a work in science can be taken to refer to other sections of this work. What is of interest in all this, however, is the degree of reflection that Albert manifests regarding questions concerning the epistemic status of both the *Prior* and *Posterior Analytics*.

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[47] *Ibid.*, p. 459b.
[48] *Ibid.*, tr. V, c. 6, p. 617a. It should be noted that certain logicians of the 14th century contended that 'to have three terms' counts as a passion that is properly demonstrated to belong to *syllogism*. See, for example, Richard of Campsall, *Questiones Super Librum Priorum Analeticorum*, ed. Edward A. Synan, *The Works of Richard of Campsall*, Vol. I, (Toronto, 1968), I.35 and I.36.